AMENDMENTS

IN THE CLAIMS

Please amend the claims as follows.

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1. (Amended) A method of forming air gaps within an integrated circuit structure, comprising the steps of:

providing a partially fabricated integrated circuit structure and depositing a layer of dielectric thereon;

forming a metal layer on the surface of said dielectric layer;

depositing a thin layer of oxide over the surface of said dielectric layer thereby including said metal layer;

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forming a structure for a first layer of cavities over the surface of said thin layer of oxide and aligned with said metal layer, said forming a structure for a first layer of cavities comprising applying and patterning a first layer of nitride followed by applying and patterning a first layer of oxide, said forming a structure for a first layer of cavities further comprising forming a first and a second opening through said first layer of oxide;

forming a structure for a second layer of cavities above and aligned with said structure for said first layer of cavities, said forming a structure for a second layer of

cavities comprising applying and patterning a second layer of nitride followed by applying and patterning a second layer of oxide, said forming a structure for a second layer of cavities further comprising forming a first and a second opening through said second layer of oxide;

creating the first and the second layer of cavities;

performing an oxide deposition over the surface of said second layer of cavities, creating a thin layer of oxide; and

forming a metal inductor on the surface of said thin layer of oxide.

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2. (Amended) The method of claim 1 wherein said forming a metal layer on the surface of said dielectric layer is forming a layer of metal that has the cross section of a square or a rectangle with essentially vertical sides whereby the height of said metal layer is equal to the thickness of a conventional semiconductor metal layer whereby a width of said metal layer is equal to or exceeds its height by a measurable amount.

3. (Amended) The method of claim 1 wherein said forming the structure for a first layer of cavities comprises the steps of:

depositing a first layer of nitride over the surface of said thin layer of oxide;

creating an opening in said first layer of nitride whereby said opening aligns with said metal layer and has a dimension when measured in a direction along the surface of said thin layer of oxide that is smaller than a dimension of the surface of said metal layer by a measurable amount;

depositing a first layer of oxide over the surface of said first layer of nitride thereby including said opening in said first layer of nitride whereby said first layer of oxide has a dimension of thickness in addition to having a dimension of width; and

creating a first and a second opening in said first layer of oxide whereby said first and second openings are located at the opposite extremities of said first layer of oxide whereby the distance between the central axis of said first and second openings is less than said dimension of width of said first layer of oxide by a measurable amount.

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4. (Amended) The method of claim 1 wherein said forming the structure for a second layer of cavities comprises the steps of:

depositing a second layer of nitride over the surface of said first layer of oxide thereby including said first and second openings created in said first layer of oxide;

creating an opening in said second layer of nitride whereby said opening aligns with said metal layer and has a dimension

when measured in a direction along the surface of said first layer of oxide that is approximately equal to a dimension of the opening created in said first layer of nitride;

depositing a second layer of oxide over the surface of said second layer of nitride thereby including said opening created in said second layer of nitride whereby said second layer of oxide has a dimension of thickness in addition to having a dimension of width; and

creating a first and a second opening in said second layer of oxide whereby said first and second openings are located at opposite extremities of said second layer of oxide whereby a distance between a central axis of said first and second openings is less than said dimension of width of said second layer of oxide by a measurable amount.

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5. (Amended) The method of claim 1, said creating a first and a second layer of cavities is removing said first and second layer of nitride, said removal to take place by accessing said first and second layer of nitride by means of said first and second opening created in said second layer of oxide furthermore by accessing said first layer of nitride by means of said first and second openings in said first layer of oxide.

6. (Amended) The method of claim 1 wherein said performing an oxide deposition over the surface of said second layer of cavities is creating a thin layer of oxide over the surface of said second layer of oxide thereby furthermore closing off said first and said second openings created in said second layer of oxide.

7. (Amended) The method of claim 1, creating additional layers of cavities over a preceding layer of cavities, said additional layers being created prior to performing an oxide deposition over the surface of an upper or last layer of cavities, said creation of additional layers of cavities comprising the steps of:

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depositing an additional layer of nitride over the surface of a layer of oxide of a preceding layer of cavities thereby including first and second openings created in said layer of oxide of a preceding layer of cavities;

creating a opening in said additional layer of nitride, said opening being aligned with said metal layer and having a dimension when measured in a direction along the surface of said layer of oxide of a preceding layer of cavities that is approximately equal to a dimension of an opening created in preceding layer of nitride;

depositing an additional layer of oxide over the surface of said additional layer of nitride thereby including said opening created in said additional layer of nitride, said additional layer of oxide having a dimension of thickness in addition to having a dimension of width; and

creating a first and a second opening in said additional layer of oxide, said first and second openings being located at opposite extremes of said additional layer of oxide, a distance between a central axis of said first and second openings being less than said dimension of width of said additional layer of oxide by a measurable amount.

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8. (Amended) The method of claim 1, said layers of nitride being layers of a disposable solid.

9. (Amended) The method of claim 8, said disposable solid being a polymer, said creating a first and a second layer of cavities is heating said substrate in oxygen, evaporating said disposable solid layer using O_2 plasma.

10. (Amended) The method of claim 8 wherein removing said disposable solid layer is introducing a solvent to said substrate, dissolving said disposable solid layer.

11. (Amended) The method of claim 8 wherein creating a first and a second layer of cavities is heating said substrate, evaporating said disposable solid layer.

12. (Amended) The method of claim 11 wherein creating a first and a second layer of cavities is applying a vacuum to said substrate, dissolving said disposable solid layer.

13. (Amended) The method of claim 1 wherein an insulating layer is deposited over the surface of said inductor thereby encapsulating said inductor.

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14. (Amended) The method of claim 1, said partially fabricated integrated circuit structure comprising transistors, said transistors being bipolar or CMOS devices interconnected to form and RF amplifier.

15. (Amended) The method of claim 1, said inductor being a spiral.

16. (Amended) The method of claim 15, said spiral of said inductor being a circular or polygonal.

17. (Amended) The method of claim 16, the polygonal of said inductor being a square or a hexagon or an octagon.

18. (Amended) The method of claim 1, said inductor having an inductance in excess of 1 nH and a self-resonance in excess of 10 MHz.

19. (Amended) A multilevel structure comprising horizontal air cavities in support of a metal inductor, comprising:

a semiconductor surface that has been provided with a metal point of electrical reference or that functions as an inner port on its the surface;

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a thin layer of oxide overlying said semiconductor surface, including exposed surfaces of said metal point of electrical reference or inner port;

a first horizontal cavity overlying said thin layer of oxide, said first horizontal cavity being discontinued above said metal point of electrical reference or inner port;

a first layer of dielectric overlying said first horizontal cavity including said regions of discontinuance of said first horizontal cavity;

vertical openings in said first layer of dielectric located at extremities of said first layer of dielectric;

a second horizontal cavity overlying said first layer of dielectric, said second horizontal cavity being discontinued above said metal point of electrical reference or inner port;

a second layer of dielectric overlying said second horizontal cavity including said regions of discontinuance of said second horizontal cavity;

vertical openings created in said second layer of dielectric located at extremities of said second layer of dielectric; and

a thin layer of oxide overlying said second layer of dielectric.

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21. (Amended) The structure of claim 19 whereby said structure is further extended to include additional layers of horizontal air cavities in support of a metal inductor, each layer containing one horizontal cavity and one layer of dielectric overlying said horizontal cavity with each horizontal cavity being discontinued above said metal point of electrical reference or inner port, each dielectric layer having been provided with vertical openings located at extremities of said layer of dielectric, said additional layers of horizontal air cavities being located underneath said thin layer of oxide overlying an upper or last layer of dielectric.